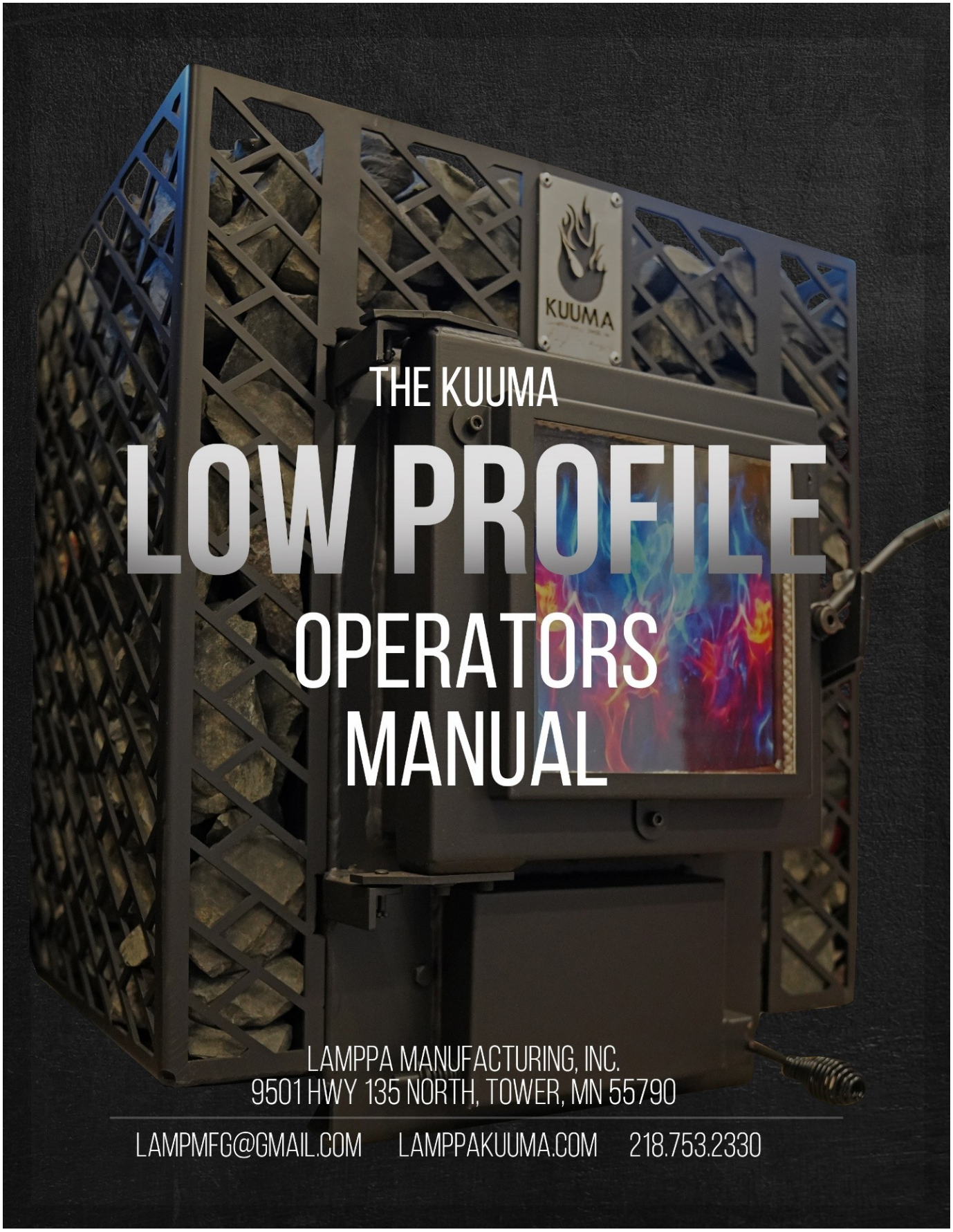

THE KUUMA
LOW PROFILE
OPERATORS MANUAL

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Contents

1 Notes, Cautions, and Warnings....3
2 Components....4
3 Installation Instructions....4
3.1 Stove Curing (See our YouTube page for a video)....4
3.2 Installation....5
4 Operation....6
5 Stove Maintenance....7
5.1 Each Use....7
5.2 Every 4 or 5 Sauna Sessions....7
5.3 Every 2 Months....7
5.4 Annually....8
5.5 As Needed....8
6 Safety Dimensions and Clearances....9
6.1 Floor....9
6.2 Front of Stove....9
6.3 Rear of Stove....9
6.4 Wall Heat Shield....11
6.5 Ceiling....11
6.6 Stove Pipe....11
7 Stove Dimensions and Information....12
7.1 Dimensions....12
7.2 Hot Room Size Recommendation:....13
7.3 Stove Weight (without rocks):....13
7.4 Rock Capacity:....13
8 Reference Information....13
8.1 Creosote....13
8.2 Chimney Design....14
8.3 Stove and Sauna Considerations....16
8.4 Best Wood for Burning....16
8.5 Useful Facts....17
9 Troubleshooting....17
9.1 The stove is not burning properly (quick checks)....17
9.2 Overheating....17

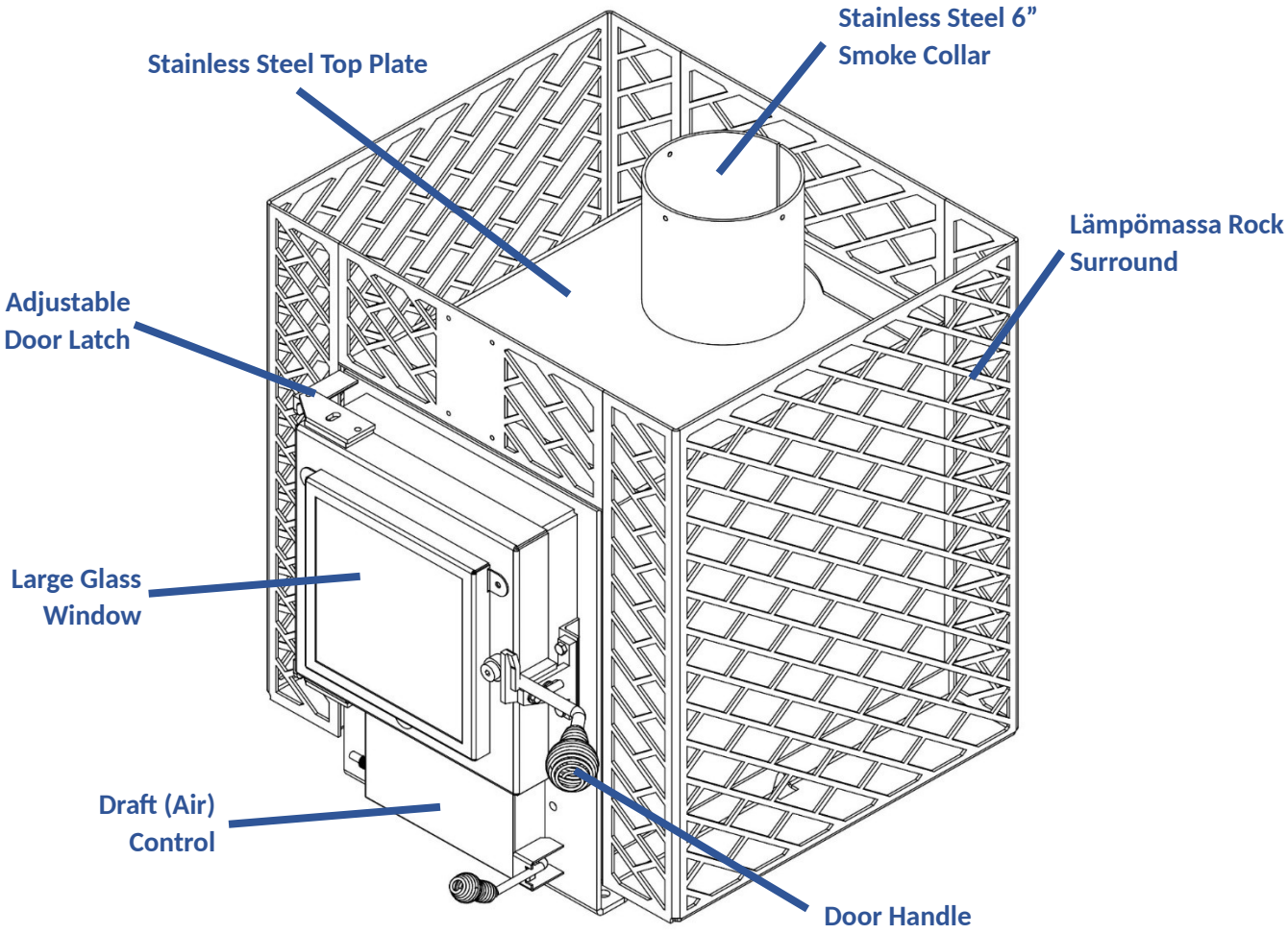
9.3 Underheating.....18
9.4 Visible Smoke after 15 minutes.....18

1 Notes, Cautions, and Warnings

Statements enclosed in text boxes in this document are used to highlight important information. Below are descriptions of the 3 different text boxes you will see throughout this manual.

NOTE:	Statements that provide further clarification.
CAUTION:	Statements identifying conditions or practices that could result in equipment or other property damage.
WARNING:	Statements identifying conditions or practices that could result in personal injury or loss of life.

2 Components



3 Installation Instructions

WARNING:	Install and use only in accordance with these installation and operating instructions.
NOTE:	Contact local building or fire officials about restrictions and installation inspection in your area.

3.1 Stove Curing (See our YouTube page for a video)

- Before using the stove for the first time, it is necessary to do 3-stove-curing burns. To avoid a non-toxic odor in your hot room, it is recommended to perform the curing burns outdoors before installing the stove inside your sauna.

- Before lighting a fire for a cure burn, first install the provided fire bricks as stated below in section 3.2.
- Add on a minimum of 3-4 foot section of stove pipe.
- Place some newspaper or an appropriate fire starter inside the firebox near the front door.
- Next, place some small wood kindling on the newspaper.
- Finally, place 3 or 4 pieces of well-cured firewood on top of the kindling. We suggest pieces that are 15 to 16 inches in length (up to 20” for the large model). Push these chunks back until the ends touch the back wall of the firebox.
- Move the draft-control handle (located directly below the main firebox door) to the full-open position (move the handle up as far as it will go).
- Light the newspaper and close the main firebox door.
- Once the fire is burning well, lower the draft control lever on the stove until it is open, only about ½ throttle or less if you have drier wood.
- Let the stove burn until the fire goes out. Perform another burn with slightly more wood, followed by a larger final one, as it would be used in the sauna.
- If you are doing your stove-cure burn inside your hot room, we suggest propping the sauna door open and potentially installing a room fan to help blow smoke out of the hot room.
- The stove will smoke a fair amount (non-toxic) as the paint is hard-cured, and any remaining oils and/or preservatives on the steel are burned off.
- The stove might pop, crackle, and smoke, which are all good things.
- It is recommended that you perform three curing burns (small, medium, and large).
- You are now ready to enjoy your first sauna!

WARNING:

Only use cordwood as fuel and never use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid, or similar liquids to start or "freshen up" a fire in this stove. Keep all such liquids well away from the stove while it is in use.

WARNING:

The stove is hot while in operation. Do not touch and keep children, clothing and combustibles (wood) away. Direct contact will cause severe burns to the skin.

3.2 Installation

- Confirm that the stove has an appropriately sized non-combustible surface to be set on. (See section 6.1)
- Confirm that the stove and stove pipe location will comply with all clearances as shown in section 6.
- Place the stove into its final resting position.

NOTE:

Because the top of the stove is made to drain water out the back, we suggest having the stove tilted slightly backwards.

- Firebrick Installation (See our YouTube page for a video)
    a. Install floor bricks first.
    b. Proceed with side bricks by sliding the top under the angled support iron and pushing the bottom against the firebox wall.
    c. By design, there should not be any firebrick on the back wall.

- The stove must be connected to:
    a. A chimney complying with the requirements for Type HT chimneys in the Standard for Chimneys, Factory-Built, Residential Type and Building Heating Appliance, UL 103, or
    b. A code-approved masonry chimney with a flue liner.
- Use 6” diameter, 24-gauge stove pipe to connect the stove to an approved chimney.
    a. Install a chimney damper in the first stove pipe section from the stove (this will help negate extremely windy conditions, prevent too much heat from being drawn up the chimney, and help arrest a chimney fire).
    b. Secure each pipe section to the next using a minimum of 3 sheet metal screws.
- Install heat shields on stove (if applicable).

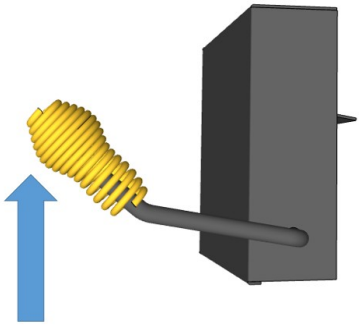
WARNING:	Never locate stove in an area (room) that is too air-tight. The stove needs air to burn and occupants need air to breathe.

4 Operation

WARNING:	Only use cordwood as fuel and never burn garbage, gasoline, or other flammable liquids.

WARNING:	The stove is hot while in operation. Do not touch and keep children, clothing and combustibles (wood) away. Direct contact will cause severe burns to the skin.

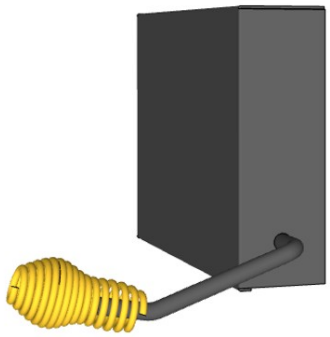
1. Place a generous amount of paper and dry kindling into the fire chamber and stack a reasonable amount of dry wood on top of the kindling, keeping the front of the logs at least 1” away from the front of the stove. Never against the front.
2. Adjust air control to the wide open (up) position.



3. Light the fire and close the door.

CAUTION:	Never burn a stove wide open very long. Preheating the firebox and wood are the only time it's needed. This will enable the stove to last a long time and result in safe burns.

4. After 5-10 minutes of pre-heating, lower the draft lever arm to the normal burn position (about 50% open).



5. Pull hot coals forward before reloading for an extended burn.
6. If for some reason you want to put the fire out, lower the lever arm all the way down to the stop position. Close the chimney pipe damper as well. This won't immediately stop the fire.

WARNING:	The pipes and stove should never become red or glow - this would indicate over firing and possibility of a pipe and/or chimney fire, which is very dangerous.

5 Stove Maintenance

5.1 Each Use

- We suggest the "Bake and Breath" method following each sauna session.
  - **Bake:** When you are done with a sauna session, make sure you still have some good coals in the firebox. Pull the coals forward with the ash rake, then exit your hot room and leave the door closed for the night (this will dry out the inside of the hot room and kill any germs).
  - **Breathe:** The next morning, return to the sauna and prop open the hot room door until the next sauna session (this will air out your sauna between sessions).

5.2 Every 4 or 5 Sauna Sessions

- Remove ashes from the fire chamber before starting a new fire.
  - Use a small coal shovel to remove ash from the fire chamber.
  - Place ashes into a metal container with a tight-fitting lid.
  - Place a metal container on a non-combustible floor or the ground, well away from all combustible materials.
  - Retain the ashes in the closed container until all cinders have thoroughly cooled before disposal.

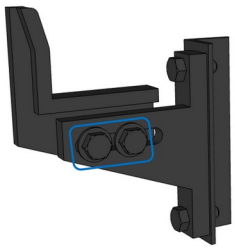
5.3 Every 2 Months

- Inspect and clean the stove pipe and chimney for creosote and soot accumulations (see section 8.1 for more information about creosote formation and the need for removal.)
  - If creosote is found during inspection, it should be removed to reduce the risk of a chimney fire.

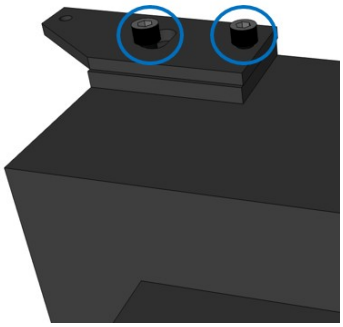
- Clean the chimney with a chimney brush.

5.4 Annually

- Vacuum inside the smoke collar on top of the baffle to remove any accumulation.
- Remove the sauna rocks, check, and replace any rocks that are disintegrating.
- Vacuum rock box and firebox.
- Check the fire brick in the stove. Cracks are okay, but if they are disintegrating, they should be replaced.
- Use a Scotch-Brite pad to scuff areas where paint has chipped, scratched, and worn away (especially in the rock box area). Then, touch up the areas with a black high-temp flat/matte paint (Stove Bright, Thurmalox, VHT, Rustoleum, all available at box stores, auto part stores, or on Amazon). The paint will help keep a protective barrier between the water and the metal of the stove.
- Confirm the fire box door closes tightly and evenly across the door.
  - To adjust the door on the handle side, loosen the two screws, lower the handle behind the latch, push the door in tightly, and tighten the screws.



  - Once the door handle/latch is adjusted, adjust the doors on the hinge side. Loosen the two screws on the top and bottom brackets of the door, and push the door in until you feel a slight resistance as you close it. Ensure it is not too tight, then tighten the screws.



  - Confirm that the door is compressing the gasket evenly around the door.
- Confirm the fire box door gaskets are not worn.
  - If the gaskets become worn, replace with ½" fiberglass rope available from local sources.

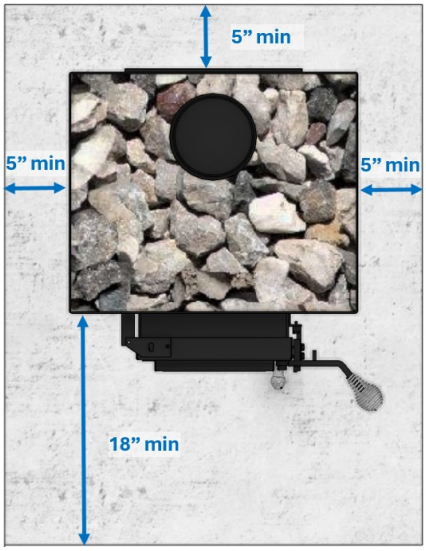
5.5 As Needed

- Glass cleaning
  - If needed, it's easy to clean by dipping a wet microfiber cloth or crumpled piece of newspaper into ash located in the firebox and wiping, followed by drying. Household ammonia also works well.

6 Safety Dimensions and Clearances

6.1 Floor

The stove must be set on a non-combustible surface. This surface must extend at least 5” on the back and sides of the stove and at least 18” from the front of the stove base.



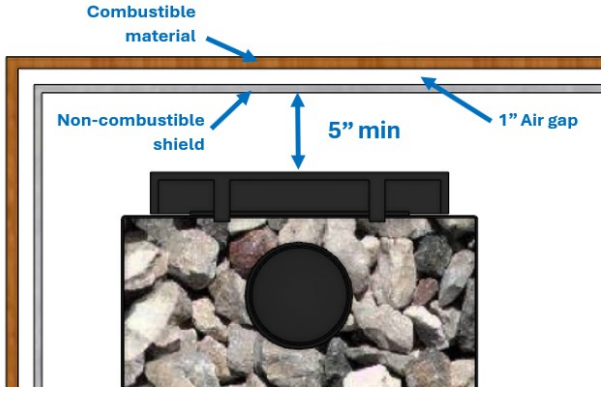
6.2 Front of Stove

There are no shielding options for the front (fuel loading side) of the stove. All combustible materials need to remain 28” from the front of the fuel loading door.

6.3 Rear of Stove

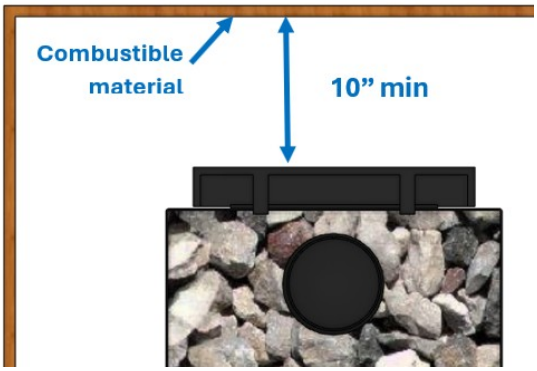
Optional Stove Heat Shield (not included):

- 5 inches to a non-combustible wall shield with a 1-inch air gap



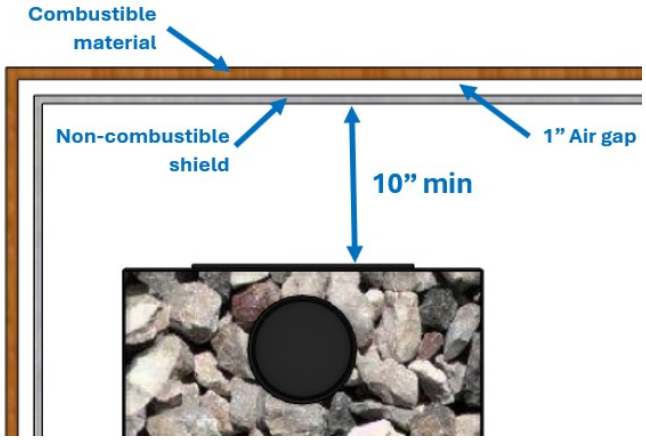
or

- 10 inches to a combustible wall



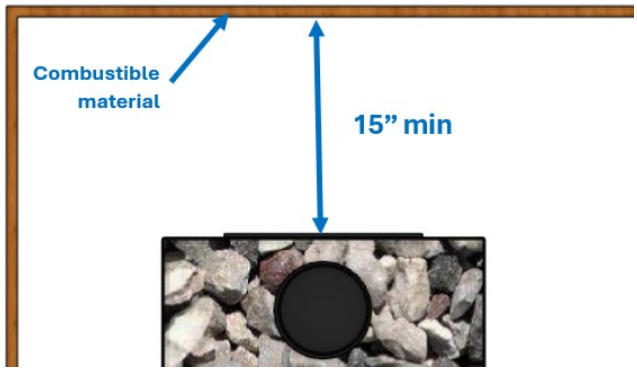
Without Stove Heat Shield:

- 10 inches to a non-combustible shield with a 1-inch air gap



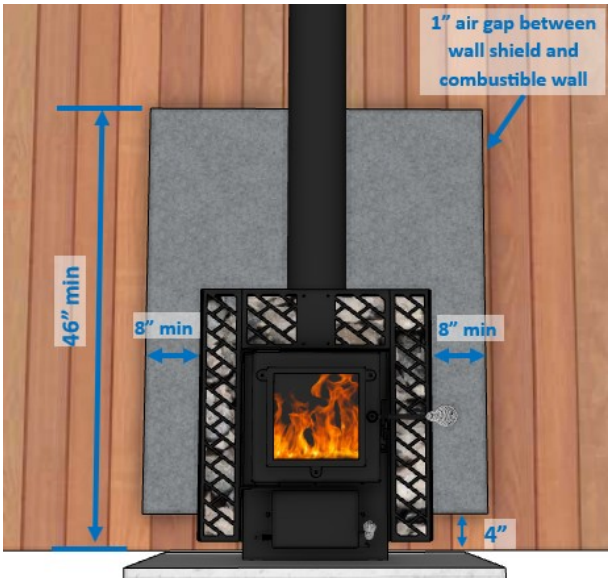
or

- 15 inches to a combustible wall



6.4 Wall Heat Shield

Wall heat shields should have a 1” air gap from the wall, be 4” off the floor, a total height of 46” or more, and extend 8 inches past the stove on each side.



6.5 Ceiling

The minimum ceiling height for this stove is 78” from the surface on which the stove sits to the ceiling. The ceiling height will determine whether a noncombustible ceiling surface is recommended.

Option A (MOST POPULAR): If your ceiling height is greater than 88”, no ceiling heat shielding needs to be applied

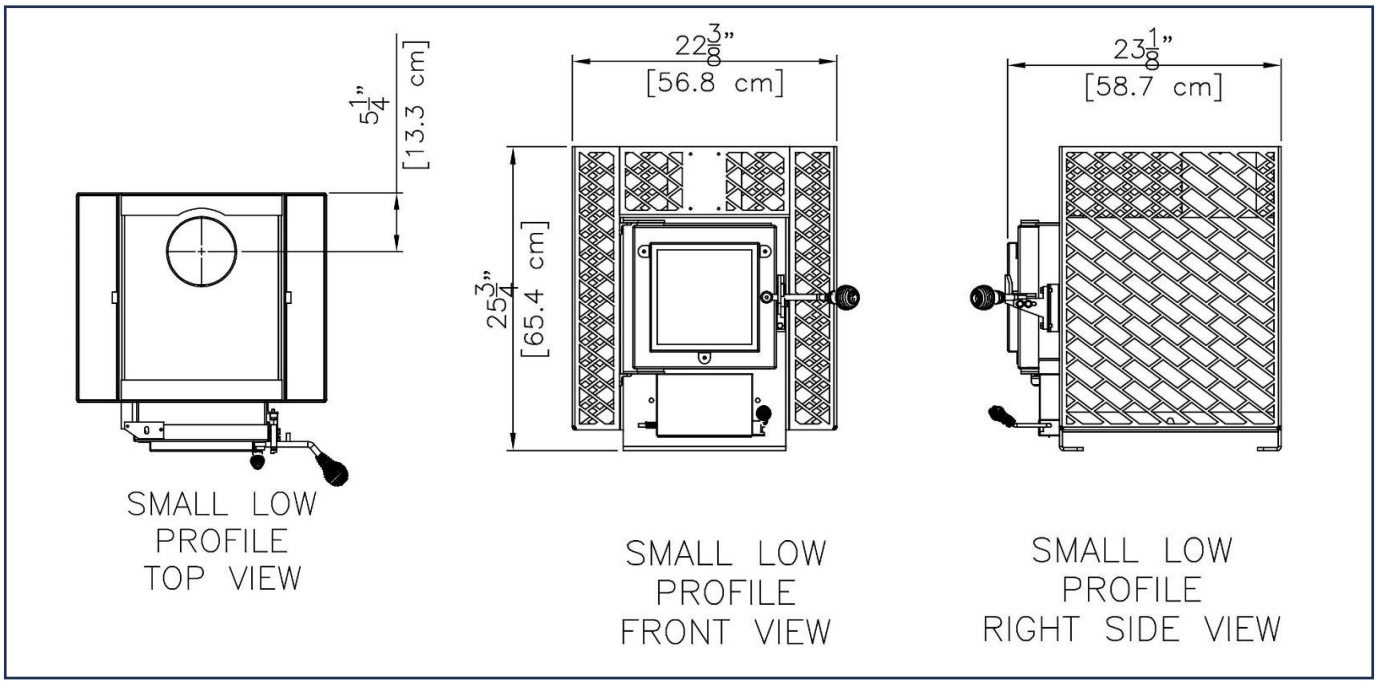
Option B: If your ceiling height is ≥78” and ≤88”, a 3’x5’ heat shield is to be placed on the ceiling with a 2” air gap between the heat shield and the combustible ceiling material. The heat shield should also be within 1” of an adjacent side or back wall.

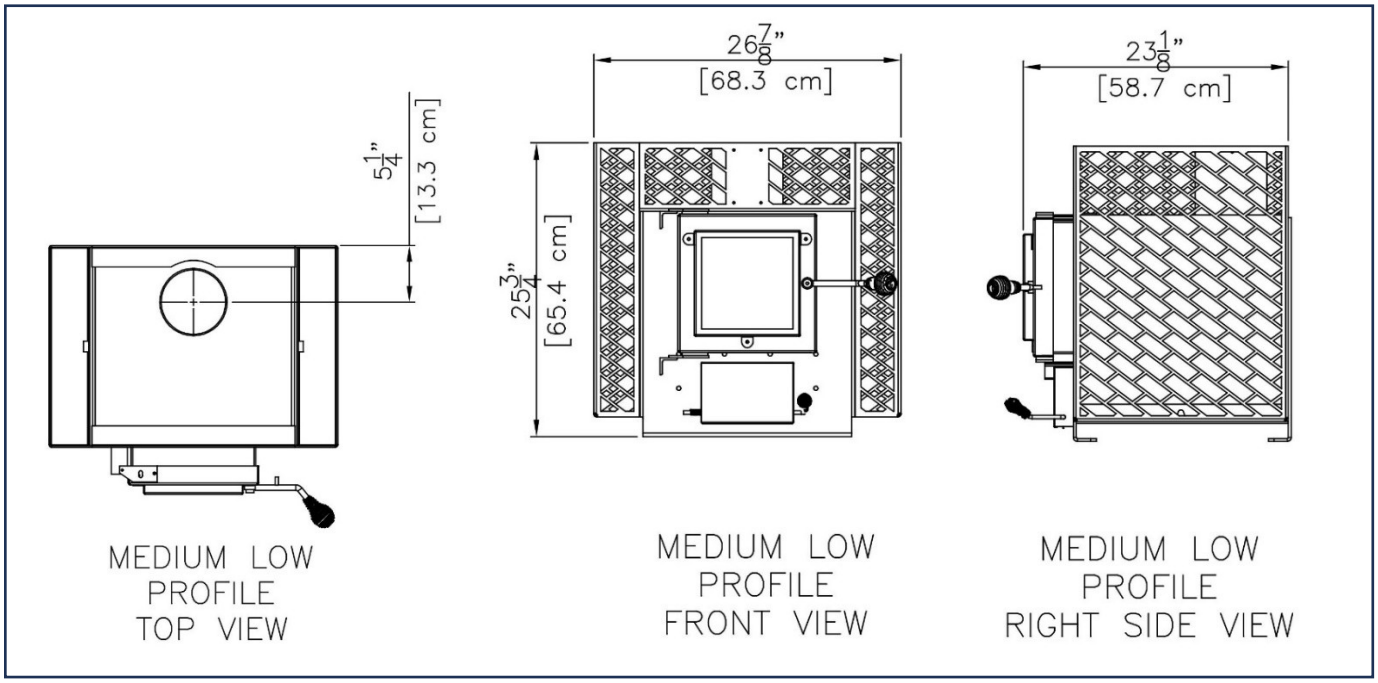
6.6 Stove Pipe

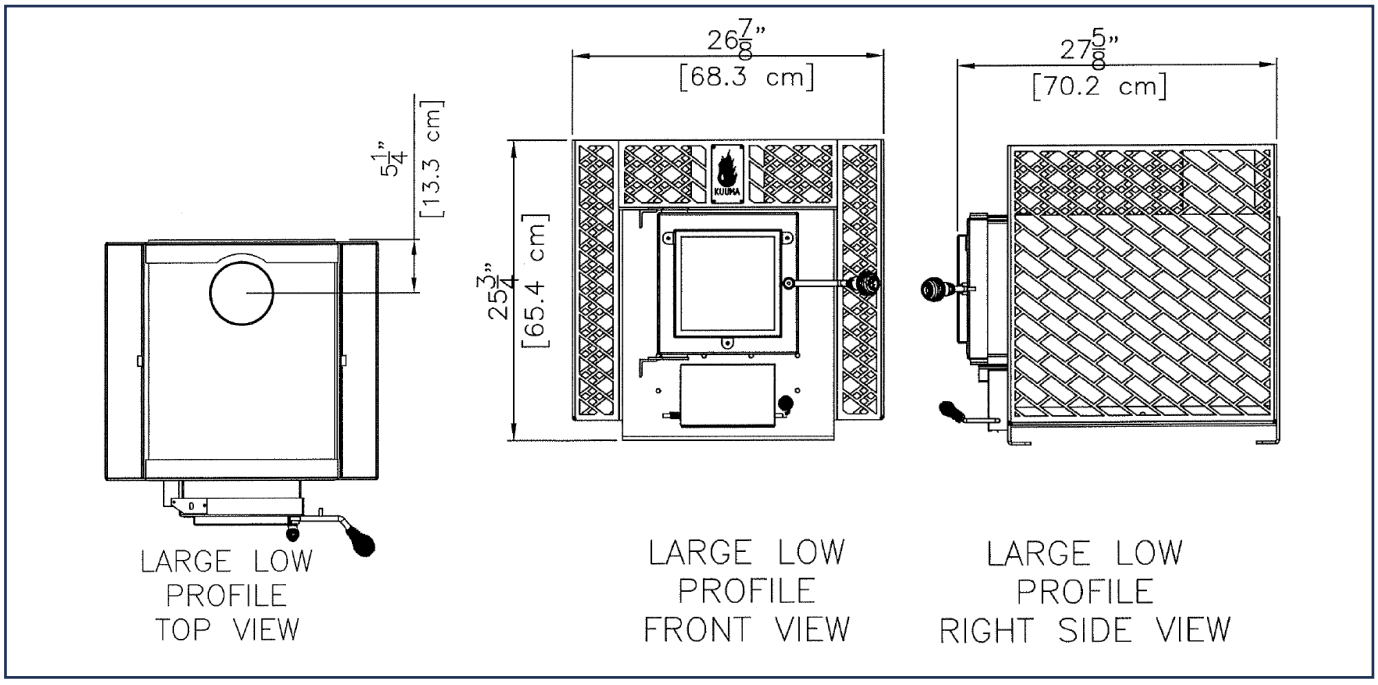
The stove pipe needs 18” clearance in all directions from anything combustible, unless double or triple-walled pipe is used. If using double or triple-walled pipe, check the manufacturer’s specifications for clearances.

7 Stove Dimensions and Information

7.1 Dimensions







7.2 Hot Room Size Recommendation:

- Small – Up to 448 cu ft
- Medium – Up to 700 cu ft
- Large – Up to 950

7.3 Stove Weight (without rocks):

- Small – 275lbs.
- Medium – 325lbs.
- Large – 375lbs.

7.4 Rock Capacity:

- Small – (150-250lbs.)
- Medium – (250-350lbs.)
- Large – (350-450lbs.)

8 Reference Information

8.1 Creosote

WARNING:	Serious fire may result if a sufficient creosote "build-up" is permitted over an extended period of time.

Creosote is highly combustible in its solid and semi-liquid states. Creosote is present in the unburnt gases given off by burning wood. Creosote may build up to a considerable thickness on the interior surface of the chimney and flue pipes, reducing the cross-sectional area through which air flows.

The amount of creosote deposited in the pipe and chimney depends on the amount of moisture in the flue gases, the temperature of the stack, and the extent to which the combustible elements in the flue gases have been burned during the combustion process.

Moisture in the flue gases can be controlled by using seasoned wood and avoiding the use of only large wood when combustion is relatively slow.

When wood is burned slowly, it produces tar and other organic vapors, which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited, this creosote makes an extremely hot fire. The chimney connector and chimney should be inspected at least once every two months during the heating season to determine if a creosote buildup has occurred. If creosote has accumulated, it should be removed to reduce the risk of a chimney fire.

NOTE:

In the event of a chimney fire:
- Ensure the fire box door is fully closed
- Close the draft lever on the front of stove
- Close the manual damper on the stove pipe
- Call the fire department

8.2 Chimney Design

The chimney is one of the most important yet often neglected and misunderstood components of any solid fuel-burning installation.

CAUTION:

The chimney must be a class "A" chimney in good operating condition. Do not connect this unit to a chimney flue servicing another appliance.

There are two types of Class “A” chimneys

This stove must be connected to:

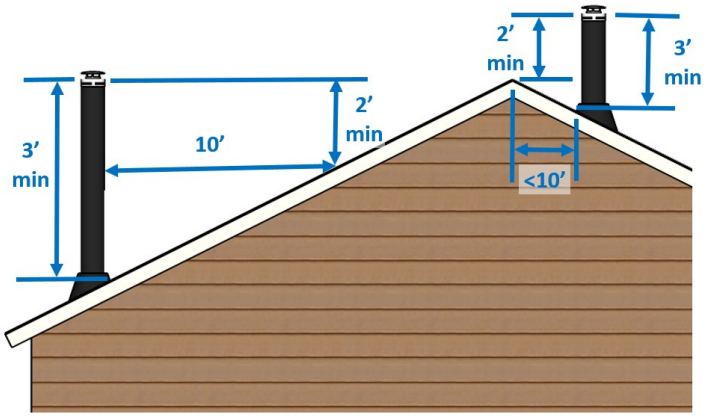
1. A chimney complying with the requirements for Type HT chimneys in the Standard for Chimneys, Factory-Built, Residential Type and Building Heating Appliance, UL 103, or
2. A code-approved masonry chimney with a flue liner.

CAUTION:

Never connect to an outside chimney unless it is sufficiently insulated to reduce the amount of condensation to a level that will not interfere with the exhaust of the flue gasses.

Always follow the 3-2-10 rule when determining how high the chimney needs to protrude out of the roof:

- The chimney's shortest side must be at least 3 feet above the roof
- The chimney's top must be at least 2 feet higher than any part of the building within 10 feet



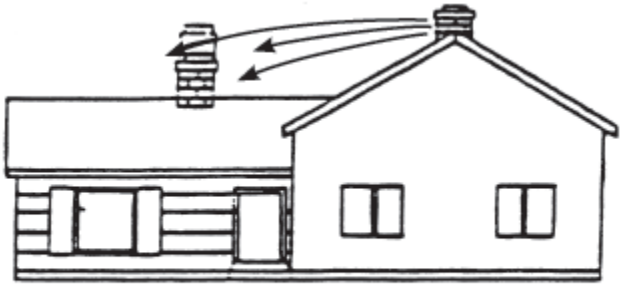
REASONS FOR INSUFFICIENT DRAFT READINGS:

1. Leaky Chimney – Air leaking in around a loose-fitting clean-out door, flue pipes not tight at the joints, improper plug openings, or defective masonry.

CAUTION:

You must check your chimney flue pipe connector frequently when first starting to burn wood to determine the amount of chimney maintenance (cleaning) that will be required. This, of course, is also dependent on wood type, moisture, and, in general, how the stove/furnace is used.

2. Chimney Improper Height – Chimney does not extend through the roof to a sufficient height to promote sufficient draft, or causes a down-drafting condition to take place. See NFPA 211.
3. Obstructions – Obstructions in the chimney. Check before using by holding a mirror in the chimney cleanout door. This will give an inside view of the chimney.
4. Trees or other topographical barriers – Impeding the chimneys' operation or causing a down-draft condition to exist. This can also be caused by an adjacent building or the roof of the same structure, where the chimney is not high enough (see figure below).



NOTE: THE CHIMNEY ON THE HOUSE ILLUSTRATED IS TOO LOW. IT SHOULD BE RAISED TO COMPENSATE FOR DRAFTS.

5. Chimney size – Chimney is not properly sized to fit the appliance adequately. It is either too small or too large, with a minimum diameter of 6 inches.

6. Chimney Offsets – Chimneys with offsets should not be used. They obstruct the draft and also provide a place for debris to collect.
7. Elbow Restrictions – The flue pipe is connected to the chimney with too many elbows, reducing the draft the chimney can provide.
8. Multiple Venting – When more than one (1) device vents into the same chimney flue.

When smoke rises into the chimney, it does so in a spiraling path.

The most important thing to remember about chimneys is their need for maintenance and cleaning. If chimneys are not cleaned regularly, it affects the draft and could contribute to a chimney fire.

If the chimney cannot supply this constant draft, the unit will not operate properly.

8.3 Stove and Sauna Considerations

- **Installing Over Concrete Floors (Cold Climates)**
  The Low Profile Kuuma Sauna Stove is very low to the ground and has substantial thermal mass. We do **not** recommend installing it directly on a bare concrete slab in cold climates, as the slab can act as a heat sink and reduce stove performance.
    - To prevent unnecessary heat loss, we recommend placing a simple insulated barrier beneath the stove, such as:

      ½" Polyiso or XPS Rigid Insulation + Cement Board

        - Lay down a layer of **½" rigid foam insulation** (polyisocyanurate or XPS) directly on the slab.
        - Cover with **½" cement board** (e.g., Durock) to create a durable, fire-resistant surface.
        - Optional: Finish with tile, steel, or aluminum for added durability and aesthetics.
    - This creates an effective thermal break while keeping the installation low-profile and cost-effective.
    - **Important Note:**
      Polyiso and XPS insulation are **not fire-rated for direct exposure**. They must be entirely covered by a non-combustible layer such as cement board. Do **not** expose foam insulation to open flame or place it where it could be exposed to heat or sparks from the stove.
    - Ensure the base is level, non-combustible above the insulation, and structurally capable of supporting the full weight of the stove and stone load.
- The Low Profile doesn't have an ashpan. Use smaller pieces of wood initially until the fire is burning well in the firebox, as you can't use the ashpan to add air and overcome non-seasoned wood or poor stove operation.
- The Low Profile is designed to use its amazing Löyly (steam) to create your sauna experience.

8.4 Best Wood for Burning

Generally, wood should be cut at least a year in advance and properly split at that time.

This wood should also be stored out of the weather, if possible. If the wood is to remain outside, be sure to cover it with plastic or similar protection. This wood should be brought inside and stored there for at least two (2) weeks before it is fired to obtain top performance.

Softwoods burn at a faster rate per cord than hardwoods.

Know what types of wood to burn. Wood is a safe, clean, and economical fuel. Freshly felled wood is not suitable as fuel due to its high moisture content; well-seasoned wood is best for producing heat efficiently. The following table provides relative values of the heating content of some commonly available woods.

Type	Weight Cord	BTUs Per Cord Air-Dried Wood	Equivalent Value #2 Fuel Oil Gals.
White Pine	1800#	17,000,000	120
Aspen	1900	17,500,000	125
Spruce	2100	18,000,000	130
Ash	2900	22,500,000	160
Tamarack	2500	24,000,000	170
Soft Maple	2500	24,000,000	170
Elm	2750	24,500,000	175
Yellow Birch	3000	26,000,000	185
Red Oak	3250	27,000,000	195
White Oak	3750	27,700,000	200
Hard Maple	3000	29,000,000	200
Hickory	3500	30,500,000	215

8.5 Useful Facts

No. 2 Fuel Oil	140,000	BTU/gallon
Natural Gas	100,000	BTU/thermal
Propane Gas	93,300	BTU/gallon
Butane Gas	100,671	BTU/gallon
Electricity	3,413	BTU/kilowatt-hour

9 Troubleshooting

9.1 The stove is not burning properly (quick checks)

- Chimney draft is incorrect and is being restricted.
  - Remove the mesh from the chimney cap. It is not designed for modern wood-burning appliances, because it reduces your draft.
  - Chimney is too low. Increase chimney height. (see section 10.2)
  - Check for obstruction in the chimney and clean it to eliminate the obstruction.
- The hot room is airtight, and you don't have a dedicated air inlet for the stove. If this is the case, the stove will usually start burning more efficiently when you open the sauna door while it is operating. This is super easy to test. Have someone open and close the hot room door as usual. If you see the flame moving in your firebox, you need to increase airflow in your hot room. Add a dedicated air inlet for the stove to ensure it draws enough air.
- Using non-seasoned wood or pieces that are too large to burn well initially. Slightly larger pieces work much better after the stove has been preheated.
- Follow stove maintenance instructions. (see section 5)

9.2 Overheating

- You operate with more wood than needed. Overheating won't typically be experienced until the reload. This is a gasification sauna stove. Operate the draft control as intended and avoid burning the wood too quickly.

It's essential to determine the exact BTU demand for your specific hot room and sauna-style preference (through trial and error). I can get really close to guessing the end temp based on how much wood I load initially and also on the reload.

9.3 Underheating

- Using non-seasoned wood or pieces that are too large to burn well initially. Slightly larger pieces work much better after the stove has been preheated.
- Incorrect-sized stove for the hot room. In this case, the stove may still be suitable for your hot room due to its efficiency. It will just take longer to get there.

9.4 Visible Smoke after 15 minutes

- Chimney is too low. Increase chimney height. (see section 8.2)
- Using non-seasoned wood or pieces that are too large to burn well initially. Slightly larger pieces work much better after the stove has been preheated.
- Wood is smoldering – (bad start, it happens to everyone at some point). Ensure the draft control is wide open.